# Commentary to support marking

Physics Sample D

SL & HL Internal Assessment May 2016

English

In the table below please provide a **short** commentary, maximum of 60 words per question/criteria, to justify the mark allocation to support workshop leaders using this sample in a workshop. Please do not refer to the candidate by name or number, or make comparison to other candidates as this document will need to be anonymised before uploading on the Workshop leader resource centre (WRC).

The commentaries are intended to support teachers’ understanding of assessment in this subject so that they can then develop other activities that assess understanding to the same standard.

Guidance for writing commentaries:

* Before writing comments read the subject report and grade descriptors for this subject. Comment should not contradict either of the documents.
* Explain why students missed/gained marks and the level of understanding that this demonstrated; useful language from the grade descriptors could be included.
* Highlight any common problems that need to be addressed by teachers

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| **Criterion** | **Mark** | **Out of** | **Justification** |
| **Personal**  **Engagement** | **2** | **2** | The student is enthusiastic and seems concerned, and this is an unusual and interesting investigation. Although the method does demonstrated individual input there is little independent thinking or insight into what is at issue. Personal engagement is on the 1-2 borderline; the moderator goes for a 2 because of the underlying initiative. |
| **Exploration** | **4** | **6** | Once you work through the text, the basic issue of space debris and an electromagnetic tether is stated. But what is the research question? This tether idea has been addressed numerous times already, and the student’s work is less focused than existing work. The lack of focus and articulation and taking on to many issues makes this exploration somewhat weak. The data from the Broholm does not checkout. |
| **Analysis** | **4** | **6** | The data table is strange, even confusing. Jumping orbits is not explained (and not even plausible). The student states how they made calculations but it is not easy to follow. Giving some benefit of doubt we can say there is sufficient data, and maybe processing is accurate and appropriate. One just does not know for sure. Given the vagueness of the research question the student does produce results for a conclusion. Uncertainties where appropriate are recognized but not processed into any conclusions (and in this model, not essential). Systematic error due to the gravitation affect of the moon is mentioned, but its significance is not determined. In fact, the masses used are 15% low due to geometrical effects of elongation. This is not addressed. |
| **Evaluation** | **4** | **6** | Some limitations and assumptions are recognized, but there is no comparison to accepted values (which do exist). Numerous complications are mentioned, thus weakening the conclusion in real life but justified in this theoretical model. Some of the numerical claims seem dubious, even meaningless. Some important questions have been ignored. |
| **Communications** | **3** | **4** | The text is not focused, and too wordy. Some notations were not presented correctly. The graphs were confusing. The development and all the detail seem confused. A brief review of the existing literature would have allowed the student to approach this topic in a more successful way. |
| **Total:** | **18** | **24** |  |